

# Digitally intensive DC-DC converter for extreme space environments, Phase I

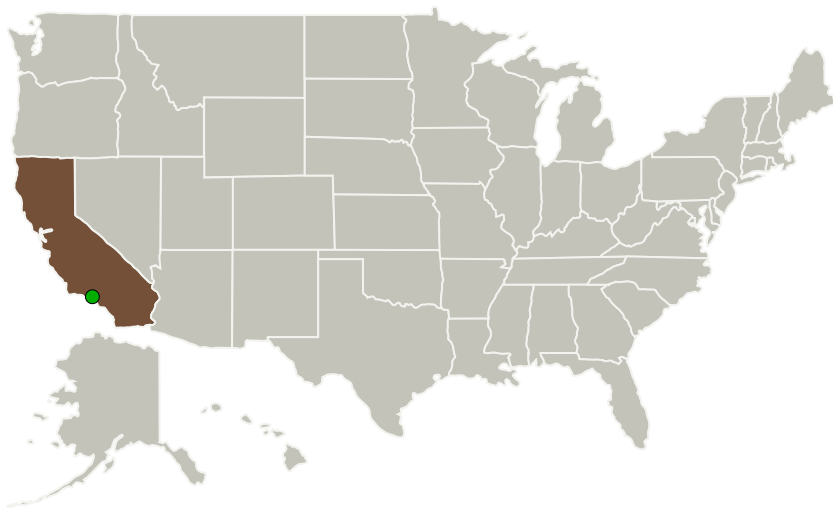
Completed Technology Project (2012 - 2012)




## Project Introduction

The Space Micro –Arizona State University (ASU) team will develop an all-digitally controlled, wide temperature range point-of-load switch-mode DC-DC regulator core with built-in self-test (BIST) functionality which meets space radiation requirements. In Phase I we will produce a design that can be fabricated into silicon in Phase II and demonstrate aspects of the design in the laboratory with some preexisting silicon circuits and discrete components. A competitive analysis below depicts the product advantages of our proposed device. These translate into substantial benefits to NASA in extreme temperature (and radiation) environments.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Space Micro, Inc.	Lead Organization	Industry	San Diego, California
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California

### Primary U.S. Work Locations

California



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## Project Transitions



**February 2012:** Project Start



**August 2012:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/140296>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission  
Directorate (STMD)

### Lead Organization:

Space Micro, Inc.

### Responsible Program:

Small Business Innovation  
Research/Small Business Tech  
Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Bert R Vermeire

### Co-Investigator:

Bert Vermeire

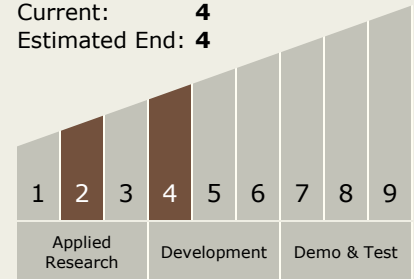
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## Technology Maturity (TRL)

Start: **2**  
Current: **4**  
Estimated End: **4**



## Technology Areas

### Primary:

- TX02 Flight Computing and Avionics
  - └ TX02.1 Avionics Component Technologies
    - └ TX02.1.7 Point-of-Load Power Converters

## Target Destinations

The Sun, Earth, The Moon, Mars, Others Inside the Solar System, Outside the Solar System